

35. (Original) A method according to claim 12 wherein said processing in step f3) comprises adjusting a phase of said diverted replica based on said input signal.

36. (Original) A method according to claim 12 wherein said processing in step f3) comprises adjusting a magnitude of said diverted replica based on said input signal.

37. (Currently amended) An adaptive predistortion system subsystem according to claim 27 wherein said delay subsystem comprises:

- a plurality of delay elements;
- means for sampling said input signal each signal component;
- means for storing samples of said input signal each signal component;
- means for selecting selected samples of said input signal each signal component; and
- means for combining said selected samples of said input signal each signal component.

Cancelled
38. (Withdrawn) \A method of initializing a phase correction to be applied to a feedback signal, said feedback signal to be used in determining a deliberate predistortion for a signal processing system, the method comprising:
a) initiating a coarse delay search
b) selecting a time window of W samples of said feedback signal and an input signal with a predetermined sample delay increments of 8 between samples
c) calculating an inner product P_a by performing a complex multiply and accumulate process for the W samples in the time window
d) storing a maximum $|P_a|$ found
e) repeating steps c) and d) for subsequent time windows and incrementing a by a predetermined amount for each time window
f) repeating steps b) - e) for a fine delay search using fractional sample increments to cover a predetermined delay range, said delay range being centered on a maximum delay increment δ_{max} found during said coarse delay search.

- canceled*
39. (Withdrawn) A method according to claim 38 wherein said inner product process is defined by

$$P_\delta = A_{MAC} \cdot \sum_{k=n-W}^{n+W-1} \exp(j \cdot (\angle x_\delta(k) - \angle z(k))) \text{ where}$$

$\angle x_\delta(k)$ is a phase of said

input signal

$\angle z(k)$ is a phase of said feedback signal

A_{MAC} is a constant

n is an integer denoting a time window

- canceled*
40. (Withdrawn) A method according to claim 38 wherein said phase correction is a phase of said maximum P_δ .

- canceled*
41. (Withdrawn) A method according to claim 36 wherein said magnitude is adjusted by multiplying said diverted replica by $A_{sx}(k)$ where

$$A_{sx}(k+1) = A_{sx}(k) + \mu_A \cdot (|x_\delta(k)| - A_{sx}(k)) \cdot A_{sx}(k) |z(k)|$$

For $k_A \leq k \leq k_A + W_A - 1$

where

k_A = commencement time for magnitude adjustments

W_A = number of samples for which adjustments are performed

μ_A = update step size and $0 \leq \mu_A \leq 1$

$x_\delta(k)$ is said input signal

$z(k)$ is said feedback signal

cancel(ed)
42. (Withdrawn) A method according to claim 35 wherein said phase is adjusted by applying a

phase correction to said diverted replica, said phase correction being initialized by a method for initializing a phase correction to be applied to a feedback signal, said feedback signal to be used in determining a deliberate predistortion for a signal processing system, the method comprising:

- a) initiating a coarse delay search
- b) selecting a time window of W samples of said feedback signal and an input signal with a predetermined sample delay increments of δ between samples
- c) calculating an inner product P_δ by performing a complex multiply and accumulate process for the W samples in the time window
- d) storing a maximum $|P_\delta|$ found
- e) repeating steps c) and d) for subsequent time windows and incrementing δ by a predetermined amount for each time window
- f) repeating steps b) - e) for a fine delay search using fractional sample increments to cover a predetermined delay range, said delay range being centered on a maximum delay increment δ_{\max} found during said coarse delay search.

cancel(ed)
43. (Withdrawn) A method according to claim 12 wherein said deliberate predistortion is at least partially based on characteristics of said system output signal.

cancel(ed)
44. (Withdrawn) A method according to claim 43 wherein said deliberate predistortion is determined in an interactive manner during transmission of said system output signal.